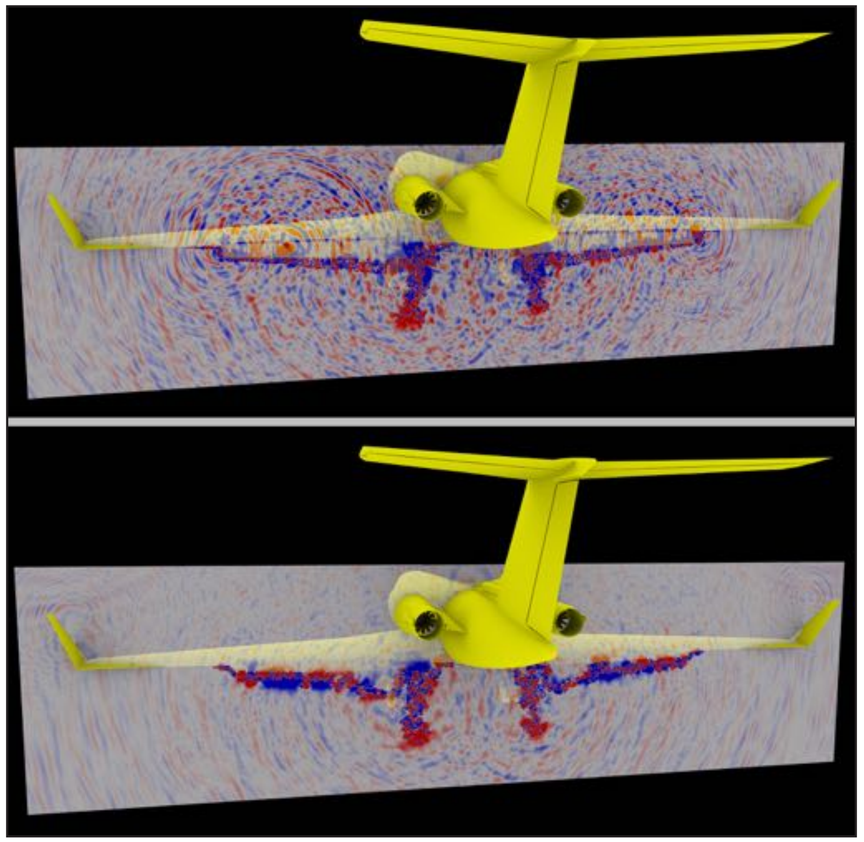
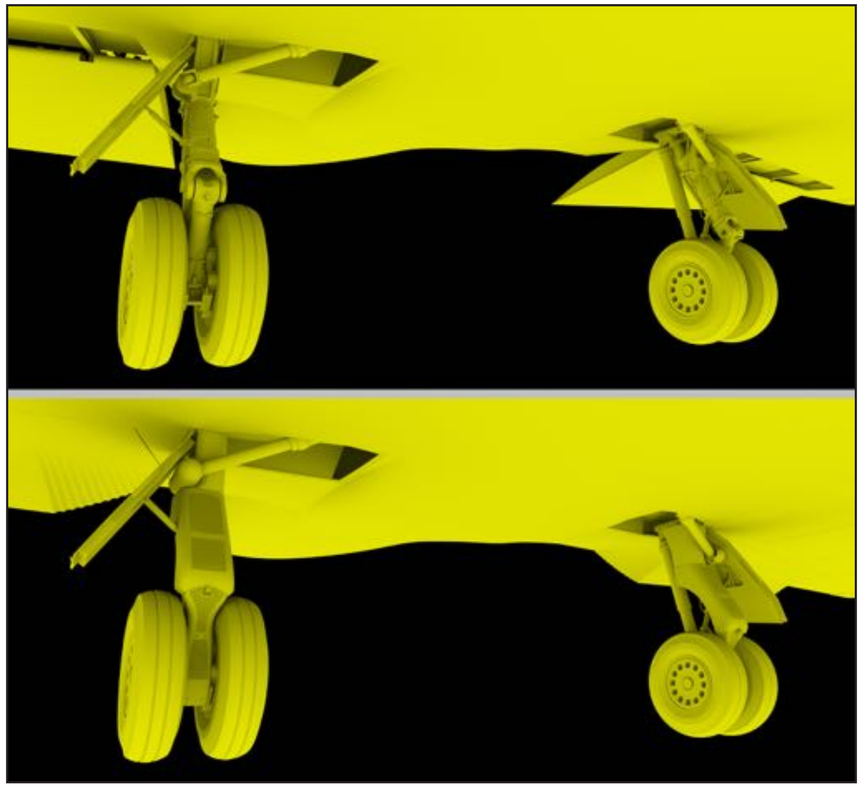


Sound waves emanating from a full-scale Gulfstream G-III aircraft during approach without noise reduction technologies (top) and with wing flap and main landing gear noise reduction technologies added (bottom). Red and blue contours represent maximum and minimum sound pressure levels, respectively.
Ryan Ferris, Exa Corporation; Patrick Moran, NASA/Ames



Close-up view of the full-scale Gulfstream G-III aircraft main landing gear and inboard wing flap tip region. The top image depicts the baseline geometry. In the bottom image, noise reduction fairings are shown installed on both main landing gears; also note the continuous wing made possible by the Adaptive Compliant Trailing Edge technology, which eliminates the tips, gaps, and brackets that generate noise when the flaps are deployed.
Benjamin Duda, Exa Corporation; Patrick Moran, NASA/Ames

National Aeronautics and Space Administration

Aircraft Noise Reduction Technologies Come In for a Landing

Imagine a future when the noise produced by commercial aircraft taking off or landing is only heard within airport boundaries. As part of a long, steady march toward this goal, NASA recently flight-tested landing gear and wing flap technologies that significantly reduce the noise generated by the airframe of a landing Gulfstream III.

The timely completion of the flight tests was facilitated by full-scale, high-fidelity simulations of the test aircraft, run on NASA's Pleiades supercomputer. These simulations demonstrated, a priori, that the tested shape-changing flap and landing gear fairings produce significant acoustic benefits. Post-flight comparisons of measured and simulated data corroborated the accuracy of the predicted noise reduction.

Mehdi Khorrami, NASA Langley Research Center